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CONFIDENTIAL 9 July 1957

MEMORANDUM FOR: CHIEF, TSS/ED

SUBJECT : Current Status of the Testing & Evaluation Program

RECORDERS

1. Per the request of the AC/TSS/R&D, the following status report of the Testing and Evaluation Program which has been started within the administration of [] is submitted. The categories of the program fall naturally into three main subdivisions and each of these will be discussed in turn.

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2. Personnel being utilized on the T & E Program

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The writer has been designated by [] to head up the T & E Program with the stipulation that it be kept on an informal basis within the framework [] at least until the program is well under way. In general charge of the program at [], a chemist by profession, who also has [] responsibilities in addition to those of the T & E Program. Assisting him on a part-time basis is [] a general technician. Recently assigned full time to the T & E Program is [] an electronics engineer.

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It is freely admitted by all concerned that this is not a really good arrangement. However, the shortage of personnel [] coupled with a heavy workload, has dictated this arrangement whereby part-time personnel are employed on the T & E Program. It should be added that certain T & E work performed at the laboratory is assigned occasionally to other [] personnel as regular work orders.

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[] has also [], actually a member of PSD, who is stationed [] for the express purpose of assisting on T & E of photographic equipment.

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3. Contractors Available for the T & E Program

It became quite obvious early in the program that [] would not be able to absorb the complete T&E Program because of the ever-increasing scope. As such, contractors are now being set up and some work is actually in progress with them.

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a. [] - The company has [] formerly head of the Procurement Division, OL, as an employee. As such, capabilities of the company have been brought to the attention of the Agency. Upon checking with them, they appeared to have definite capabilities for conducting certain phases of a T & E

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Program, notably

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Program, notably in the field of electronics. Taking on T & E work [] appears to be a method of keeping together an electronics group in the face of periodic work fluctuations. A basic contract has been just completed with them and they have now bid upon a T & E program for standard types of tape recorders according to guide lines laid down by mutual TSL and ASD agreement. We will not process this proposal through normal logistics channels and work should start within a month's time. [] is as yet an unknown quantity with us and we will keep close watch to insure they have the capabilities for the program. They are physically near, are small in size (about 300 employees), and have had experience in OSS support during the war, all of which would appear to be desirable. In addition, they will be utilized under the same basic contract for certain modification and pilot plant manufacture, not actually a part of the T & E program.

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b. [] - Under a basic contract already in existence, a task has been set up to provide funds in the amount of \$10,000 for various T & E projects which come up and which appear within the capabilities of []. The first project, the T & E of a 355-degree Japanese camera, is already under way, the project estimated to cost \$4,000.

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c. [] The General Labs of this company has just submitted a proposal for the evaluation of concealable recorders (briefcase and on the person) available on the commercial market and also any other models which we can submit. This proposal, in the amount of \$13,000 is now being processed. In addition, [] will submit several other types of electronic gear for a T & E by [].

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d. [] - Some \$39,000 remains from CAVIABLE program at this company and it is the thinking [] that perhaps these funds can be utilized for a section of T&E although this possibility has not as yet been explored with them.

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4. Actual Projects of the T & E Program

Outlined below are the projects currently part of the T & E Program:

a. Those items which have been completed

(1) Modification to a Revere T-700. This modification had been designed to eliminate the solenoid thud upon starting the machine and certain changes circuitwise had to be made to eliminate tape scorching trouble. The design was checked out at TSL under environmental conditions and

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approved for use. The actual modification is something which will be turned over to [] on a continuing basis.

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(2) A medium frequency surveillance system. Performed for ASD with APD being the monitor. System reported as unsatisfactory from an operational viewpoint.

(3) Evaluation of two types of language teaching machines for OTR. Herein a phonetic test was made to determine which machine had the greatest ability to transmit intelligence to the student. One machine proved to be 10% better than the other. This work was performed []

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(4) Microphone comparison. ASD requested a "quick and dirty" comparison of two new APD developments of microphones in comparison to the standard Maico probe. This was carried out phonetically, the results indicating a marked superiority of the new mikes. This represented only a preliminary appraisal and much more work remains to be done.

b. Those items actually in hand at the moment

(1) []: Some 400 of these units are being produced under an APD contract at a cost of \$400 per unit. The unit suffers from too many cooks, and failure to go through a prototype stage. Most of the operational testing is being carried out [] with other units also being tested out [] and []. A complete report will be forthcoming on or about 1 August. The one completely confirmed fact to date is that the ballast tube circuit is completely useless. Other shortcomings, complete with long points, if any, will be brought out in the final report.

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(2) VHF Code Switches: This triple-coded switch, produced by an [] contract, has been given several operational tests [] and the final tests are scheduled as a cooperative venture [] during the month of August. Final report is anticipated 1 September.

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(3) Phonetic Evaluation of Translators: We are currently supporting SR Division in evaluating their translators. This is a very interesting by-product of our efforts to evaluate electronic equipment as to its ability to transmit intelligence. This is still in the very preliminary phases.

(4) Evaluation of

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(4) Evaluation of Microphones: APD now has several types of new RCA developments which are based upon the standard BK6B mikes. We are attempting to set up a number of operational tests which will pit the new types of mikes against those commercial items which are currently being used by ASD in operations. Encompassed will be not only phonetic tests, but resistance to shock, humidity, and heat, effect of reduced atmospheric pressure (for air transport), and a number of other operational problems involved with length of lead, etc. Will attempt to do most of the work at [] with the possibility of later calling in [] 25X1

(5) Power Line Carrier Current System P-144A: A special type of electronic gear which is a development of APD. We have not even started on this as yet and have no idea at the moment how we will go about it.

(6) Operational Evaluation of the ST-2A Transmitter: This is a line powered transmitter designed [] 25X1
[] It is an APD development, earlier models of which were sent to field only to have a reliability and hum problem arise. These latest models are to be T&E'd from an operational viewpoint and [] will be utilized to do the work under our direction. 25X1

(7) PT-5 Transmitter: This is a commercially available transmitter, battery operated, which has been requested for T&E by ASD. We anticipate turning this over [] also. 25X1 25X1

(8) [] Recorders []: This is the first job [] who will evaluate all commercially available recorders in this field plus one special [] which was developed for the Air Force. 25X1 25X1

(9) Preamplifiers: ASD has requested an evaluation of three pre-amps, two commercial and one a custom-made [] job, under certain field conditions. This job has been completed wherein a phonetic test was made, and the results are being assembled. 25X1

(10) Passive Switch: Another APD item which we have not as yet gone into.

(11) Remote Switch and Activator: A [] item which is being evaluated now for reliability, life, etc. 25X1

(12) Pocket Soldering Iron: A battery-operated soldering iron for field use and which will be submitted [] for evaluation. 25X1

(13) 355-Degree Camera: This Japanese prototype has been submitted to [], who are proceeding with both a mechanical and optical evaluation. 25X1

(14) Camera, Several**CONFIDENTIAL**

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(14) Camera, Several Types: These have been requested for T & E by PSD and they are currently being tested for the purposes intended,

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(15) Reed Transcriber: A commercial item requested by APD. Designed as a playback unit, variable speed, for recording tape. This request has just been received.

5. Some personal comments on the manner in which an effective T & E program of TSS should be organized.

a. Regardless as to where a T & E group may be placed for administrative purposes, its action should be completely independent and should report as high in the organization as it is possible to do.

b. The personnel should be composed of one administrator, one electronics engineer, one mechanical engineer, and at least one technician. All should have the ability to meet and talk with contractors.

c. It is difficult, if not impossible, to formulate rules and procedures for carrying out T & E of all the wide varieties of items which are being brought into being. In most cases, the administrator must use his own best judgment of the procedures to be utilized. However, as general guide lines, the following would seem to be the best general procedure:

(1) Become completely familiar with the item in question, including the background as to why it was developed, the general specification, etc.

(2) Check with operating personnel as to the conditions under which it might be expected to operate.

(3) Draw up a test procedure of what appears to you to be the best simulation of operating conditions, taking into judicious consideration all comments concerning the item and possible end use. Remember, a T & E procedure IS NOT a check of original specifications.

(4) Restrict the program as to how the item performs under operation. Make no effort to analyze in minute detail as to WHY an item has failed. For example, it is sufficient to say that the ballast tube circuit of the DDRW does not stand up together with documentation. Make no effort to formulate a treatise on the theory of ballast tubes!

(5) When dealing with contractors to carry out your program, stay on top of them to make sure the program is going properly. Because of the very nature of the top-notch

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talent, say [redacted] it will probably not be possible just to ask for a T & E. Rather, they would like to suggest desirable changes in the item and I believe this can be a valuable contribution which can be passed on to the proper people.

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(6) The T & E report should be made directly to the top person. All pros and cons of the item should be supported by concrete evidence. This person will be the one to make decision as to final disposition of the item.

(7) It will probably be a wise procedure to evaluate any new item in the company of the nearest commercial item. In this way, not only can an absolute determination be made, but will also permit comparison, good or bad, with what is the best commercial item available.

(8) The persons concerned in the T & E program should have it as their sole job; a person cannot develop an item and then turn around and give it a fair unbiased evaluation.

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[redacted]
Deputy Chief
Technical Services Laboratory, TSS

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